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The Effect of Interest in Nonfiction Subject Matter on Comprehension

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ABSTRACT

The purpose of this study was to determine whether a student's level of interest in a nonfiction topic affects his or her comprehension of that topic. An additional objective was to find out if the student's ability level had an impact on this interest-comprehension relationship. Three first graders (one low, one average, and one high ability) were read both high- and low-interest nonfiction trade books. The findings concerning the interest-comprehension effect differed with respect to each student. Overall, comprehension scores of the high-ability student were better, while the low- and average- ability students performed similarly. Topic interest had a greater effect on comprehension for lower-ability students than the high-ability student, in the sense that lower-ability students had better comprehension of high-interest texts.

INTRODUCTION

During a course that I took last year at the University of Virginia, I administered the Qualitative Reading Inventory (QRI) to a third grade student. I noticed that some of the passages were much more interesting than others. I also noticed that the student did not have much experience reading nonfiction. I wondered whether the student's comprehension scores were affected by his interest in the topic being read. Another experience that led me to this topic choice was observing fifth graders reading books from the *Harry Potter* series. I noticed that lower-ability readers were motivated to read the books even though the books were well above their reading level.

In recent years, there has been an increased emphasis on using nonfiction books in the classroom, especially trade books. I have noticed that many students prefer nonfiction to fiction texts. In addition, the Virginia Standards of Learning, as well as educational standards in other states, include numerous nonfiction topics. Thus, students need to be able to comprehend nonfiction material.

To date, most research has focused on the interest-comprehension effect on students in the upper elementary grades. Specifically, grades four through six have received the most emphasis. I believe that there is a need to focus on the interest effect with younger students. Studies show that

reading achievement in grade 1 can predict reading achievement by grade 3 (Preventing Reading Difficulties in Young Children, 1998), and children who struggle in first grade quickly decide that they "neither like nor want to read" (Juel, 1988). These are powerful findings. If the interest-comprehension relationship works in a similar manner with young children as it does with upper elementary students, the results could provide an important tool for improving literacy of students, from the beginning of their education when it matters the most.

In this study, I worked with three first grade students of varying ability levels. I assessed the students to determine nonfiction topics that were of high and low interest to them. Then I read the books to each student and determined their level of comprehension through retellings and questioning. My hypothesis was that students would have better comprehension of topics in which they were more interested. In addition, I investigated the effect of ability level on the interest-comprehension effect. The research concerning the effects of ability level on the interest-comprehension relationship is conflicting. Some studies found that students had better comprehension on high-interest material, regardless of ability level. Other studies found that that interest level has a greater effect on low-ability students, whereas some studies found that interest level has a greater effect on high-ability students. My hopes were that this study would offer

insight into the interest-comprehension relationship for first graders, as well as provide support to one of the theories concerning differences in ability levels.

LITERATURE REVIEW

Importance of Interest

Much research has been devoted to the study of objective factors that contribute to children's success or difficulty with reading. When testing students, significant weight is put upon factors such as vocabulary complexity, sentence length and sentence structure in order to determine the readability of a text. Teachers then use this information to both group students and select books at appropriate levels for the students. However, affective factors, including interest are typically left out of the readability formula. It has been shown that a student's independent reading level varies, depending on interest (Powell, 1971). Powell observed this effect for "brief, transitory, high-intensity periods," indicating that a student's interest will move him through a passage that would usually be too difficult. The question was then, whether interest has the same effect on readers under normal conditions. Until the past 25 years, little research had been conducted concerning the effect of interest on students' overall reading comprehension. Additionally, the affective areas of reading, specifically interest, were neglected. The recent proliferation of research demonstrates the importance of interest on students' reading behaviors and reading comprehension. Both Shnayer (1968) and Jongsma (1990) point out that the

effect of teachers not attending to students' interests is apparent in most adults. In general, adults place very little significance upon reading; their interests are narrow in scope as most adults read only newspapers or work-related materials. Having a wider range of reading interests would enrich many people's lives.

Historically, elementary classrooms have emphasized fiction at the expense of nonfiction. Educators have become increasingly aware of the importance of nonfiction (Stewart, 1993). In addition, educators are becoming aware that nonfiction appeals to many students. For example, a class of kindergarteners were read a variety of both fiction and nonfiction books. Afterwards, they were asked to "pretend read" the book. The next day, the kindergarteners were asked which book they wanted to read first and which was their favorite. An overwhelming majority favored the information books, throughout the yearlong study. Equally important, the children were as competent in retelling information books as they were narratives. Pappas suggests it is possible that the tendency of students to prefer fiction books is related to early pedagogy in which stories are emphasized, due to the erroneous belief that students cannot understand or do not prefer "non-story language (1990)."

A noteworthy change in the field of nonfiction literacy has been the shift toward replacing content area textbooks with trade books. Even the

National Council of Teachers of English has formed a committee, the Committee on Using Nonfiction in the Elementary Language Arts Classroom. This and other committees promote work toward raising the status of nonfiction books to the same level as other genres in the classroom (Stewart, 1993). The use of quality nonfiction trade books has become an increasingly common practice. Because of this shift, it is important to become concerned with children's responses to and understanding of nonfiction material.

Defining Interest

Many studies to date have focused on interest as a general attitude, not specific to subject matter. In fact, interest is a component of the affective domain and therefore, influences cognitive processes. It is important to note that attitude and interest are different. A student may have a positive attitude about reading, in general, but may possess a negative attitude toward a particular subject (Thames, 1994).

Initially, interest was defined in broad terms; however, the definition has become narrower with subsequent years of research. In one study, interest was defined as a complex combination resulting from 1) reader characteristics which include hobby interests, experiences and emotional well-being 2) text factors such as text organization and style and 3) reader

interaction with the text, meaning how much the reader identifies with and is moved by the text (Bernstein, 1955). Bernstein chose passages from two books, one perceived as interesting and the other uninteresting by ninth graders. After reading the passages, students first ranked their level of interest in the passage on a five-point scale and then were tested on comprehension using objective questions and free response. Of the 100 students, a significantly higher number ranked the expected passage as more interesting. In addition, 72 out of the 100 students had better comprehension on the passage denoted by the researchers as more interesting.

In Shnayer's research (1968), a broad definition of interest was also used. Because he rated the students' level of interest following reading, factors such as those described by Bernstein naturally played a role in the interest level assigned by students. Shnayer worked with 578 sixth grade students, divided into seven homogenous groups based on vocabulary and comprehension scores from the Gates Reading Survey Test. The students then read fifteen stories that were determined to have a readability of two grade levels higher than that of the students. This was done in order to prevent a ceiling effect of comprehension scores. In other words, if the reading material was too easy the students would comprehend well, regardless of interest level. Following reading, the students rated the stories on a scale of one to four with respect to their level of interest in the story.

Students then answered comprehension questions. The findings from the study indicate that there is greater comprehension when students have high rather than low interest in the text. These findings are highly significant and indicate that high-interest reading materials allow students to read far above their calculated reading level.

In a similar study, Estes and Vaughan (1973) challenge the use of difficulty measures to determine readability of text, arguing that both difficulty and interest need to be taken into account. The authors define interest as being dependent upon the following factors: topic knowledge, need for information, familiarity with the author's work, enjoyment of the particular writing style, background of experience, and perception of text difficulty. Before reading six passages of various nonfiction and fiction topics, fourth-grade students were asked to rate their level of interest on each topic. Students were estimated to be reading on a 4.0 reading level, whereas the passages were rated as 5.5 in readability. Comprehension was measured using ten multiple-choice questions. Findings show that the average score for high-interest texts was 86, while the average score for low-interest texts was 67. Estes and Vaughan (1973) drew an important conclusion from these results: comprehension levels vary from frustrational to instructional to independent depending on the student's level of interest, despite the equal readability of all passages according to the Dale-Chall readability formula. It

is unclear, however, what range of comprehension scores constitutes frustrational, instructional and independent.

Noticing the lack of research on the relationship between interest in specific nonfiction content and reading performance, Asher (1980) conducted a landmark study from which much data has been collected and interpreted. Previously, interest was defined as an all-encompassing term, which could be influenced by a variety of factors such as text organization, text style, and reader/text interaction. Narrowing the definition, Asher chose to determine interest in specific nonfiction subjects. In addition, he noted a methodological flaw in many studies, in which interest was assessed after the selection had been read. These studies posed the problem that students might show more interest in a text that was easier for them to read, whether this is due to text factors, knowledge of topic, or familiarity with terminology. Asher and Markell (1974) developed a procedure in which fifth- and sixth-grade students' interests were assessed prior to reading, using a large number of topic choices. The children were shown 25 photographs of various topics, and they rated these on a scale of one to seven, one being least interesting and seven most interesting. In contrast to most other studies, all topics were based on nonfiction subjects (i.e. basketball, circus, priest). The children later received three passages chosen from their highest interests and three passages relevant to their lowest interests. All passages were selected from

the Britannica Junior Encyclopedia in order to maintain a consistent style and readability level. Reading comprehension was measured using a cloze procedure in which words from a passage were omitted and the child provided the missing words. Lastly, students rated the passages according to the degree to which they would like to read more about the subject. The fifth- and sixth-grade students showed a much greater desire to read those texts that related to their high-interest topics. Also evident in each study was superior comprehension on high-interest material, as measured by scores of the cloze passages (Asher and Markell, 1974).

One possible methodological flaw in Asher's previous study was that students received both high- and low-interest passages. Therefore, students may have "selectively responded to the more interesting passages in the set of materials" (Asher, Hymel, and Wigfield, 1978). In other words, when presented with both high- and low-interest texts, the low-interest materials may have seemed even more dull due to the fact that they were being compared against more interesting material. This is referred to as a "contrast effect." Asher, Hymel, and Wigfield (1978) conducted a study with 70 fifth-grade students who were given either all high-interest or all low-interest material. The remainder of the study was carried out using the same procedure as Asher's study described above, in which students took a test using the cloze procedure. Again, interest level significantly predicted

Comprehension. The mean cloze test score for students who read high-interest material was 15.99 (boys) and 15.30 (girls), while the mean score for students who read low-interest passages was 13.10 (boys) and 11.96 (girls). Based on these results, Asher, Hymel and Wigfield concluded that the contrast effect is not a factor in students' comprehension of high- and low-interest material. Student performance was better on high-interest material, despite the fact that students were not informed of the other topic choices.

Comprehension and the Relationship to Interest Level

In this discussion, it is necessary to elaborate on the concept of comprehension. Comprehension is defined in a variety of ways, and thus can be measured by equally as many methods. Some believe that comprehension comprises the following abilities: fact identification, sequencing, inference making and recognition of author's point of view (Shnayer, 1968). Others include understanding of vocabulary and main ideas (Estes and Vaughan, 1973; Stevens, date). In Bernstein's (1955) study of ninth-graders, comprehension was also defined as the ability to do the following: choose the proper meaning for a word in relation to its contextual setting, follow the passage organization, answer questions from a passage that have been restated in words not used in the passage, and determine the tone or mood.

These studies indicate that the definition of comprehension is somewhat dependent on the age or reading ability of the student.

Because the research does not focus on the interest-comprehension effect in children below fourth grade, measures besides those indicated above need to be determined for beginning readers. Controversy exists concerning the role of comprehension in beginning reading. To prove that comprehension is evident in the beginning reading process, a kindergarten classroom was observed for nine months to identify behaviors indicating attention or inattention to comprehension (McClellan, 1984). As students attempted to make meaning, the following behaviors were observed: intonation shifts, reference to pictures, commentary and paraphrasing. These behaviors occurred most frequently when meaning was lost due to a miscue (error in word recognition). This indicates that the students were concerned with meaning retrieval (McClellan, 1984). Perhaps the most effective method of determining young readers' comprehension is through retellings (Moss, 1993). The Irwin and Mitchell scale is often used to evaluate the "richness" of retellings. The scale assesses a student's retelling on the basis of inclusion and quality of the following components: main ideas and supporting details, sequencing, inferences, relation of material to own life, understanding of text organization, ability to summarize, personal opinion, the overall completeness of the retelling, and the degree of relevant

or irrelevant information. Working with K-5 students, Moss organized a study to determine how well the students understand expository text. High-, average- and low-ability students were asked to read and then retell a nonfiction text. Results indicated that average and high-ability children across all grade levels could competently retell the text, while nearly half of the low-ability readers were able to sufficiently retell the material. This study not only establishes the usefulness of retellings, but also confirms Pappas' previously discussed results that young readers can comprehend expository material (Moss, 1993).

Differences Between Higher- and Lower-Ability Students

The effect of interest on comprehension is a complex issue and becomes more complicated when the factor of reading ability is considered. The question is whether there is a difference between high, average and low readers with respect to the interest-comprehension effect. Research in this area is conflicting. Bernstein's (1955) study of ninth-graders found that ability level had no effect on the interest-comprehension relationship. Regardless of ability level, all students had better comprehension of high- rather than low- interest material. These results are supported in a study using achievement test scores (Scholastic Testing reading comprehension) to

determine high- and low-ability readers (Asher and Markell, 1974). By comparing these scores to scores on the cloze passage, it was found that there was not a significant relationship between achievement level and interest. In other words, the interest-comprehension effect is comparable in both high- and low-ability groups, with both groups comprehending more high- than low- interest text (Asher and Markell, 1974). Shnayer (1968), however, found that interest was a greater factor for lower ability groups than higher ability groups. When children read two years below grade level up or up to one year above grade level, the correlation between interest and comprehension was significant. When students were one year above grade level, reading ability alone was enough to sustain comprehension of any topic. Most interestingly, "very little discrimination between reading ability levels is possible" when students read high-interest material (except for students reading two or more years below grade level). These results pose questions with respect to labeling students as poor readers, since it might be crucial to determine if low ability or low interest is the cause (Shnayer, 1968).

The other belief concerning high- versus average- and low-ability students is that high-ability students have superior reading skills that they can employ when reading a high interest topic. Thus, high interest materials have a larger impact on gifted readers than average to low readers (defined here as readers below the eighty-third percentile) (Stevens, 1979). Fifth- and

sixth-grade students were presented with 25 pictures of various topics and rated their interest on a scale of one to seven. Using these results, two high- and two low-interest passages were given to the students. The passages and accompanying multiple-choice questions were obtained from the McCall Crabbs Standard Test Lessons in Reading. Passages were expository in nature, and written at higher reading levels than the reading levels of the students. As expected, high-ability readers had higher comprehension scores than lower-ability readers. In addition, high-ability students performed better on high-interest material, while average- and low-ability readers showed no variance.

How Interest Works to Affect Comprehension

There is more than one explanation concerning how interest works to affect the reader's comprehension. One explanation is that the student becomes more motivated when the topic is of interest to them, in which case the student works harder (Asher1980; Jongsma, 1990). It has also been suggested that students are more knowledgeable about subjects of interest to them. Therefore, students would be familiar with the vocabulary and would have more elaborate schemata from which to build, for high-interest topics (Asher, 1980). To test which factor is more significant, Asher and Geraci

(1980) had students read high- and low-interest passages, under two different conditions. One group read under normal conditions while the other group was told that they would receive a prize if they "tried their best." Students in the regular condition had significantly higher comprehension on high-interest material, while students who had an external incentive performed similarly on both high- and low-interest material. These results indicate that internal motivation is a large contributor to the observed interest effects.

These results, however, should not imply that background knowledge is unimportant for reading comprehension. Using an interest inventory, a prior-knowledge test and passages with accompanying comprehension questions, Baldwin, Peleg-Bruckner and McClintock (1985) tested seventh- and eighth-grade students. Passages for which students had high prior knowledge resulted in significantly better comprehension. The same held true for passages in which the students had a high interest in the topic. However, prior knowledge and interest were found to be autonomous factors, meaning that they were practically uncorrelated. Although we tend to think that people know more about that which they are interested in, the authors suggest that this is an adult notion based on specialization in knowledge that occurs as adults narrow down their field of career interest.

Summary

Research concerning the effect of interest on reading comprehension has increased in the past 25 years. All researchers working with students in grade four or higher have found that interest level does, in fact, have an influence on the student's degree of comprehension. Only recent studies, however, narrow the definition to determine whether interest in a specific topic causes these results, as opposed to influences such as text organization, style and prior knowledge of concepts and terms. These studies that have narrowed the focus have also demonstrated that comprehension is higher with more interesting material, at least for students in grades four through six.

With respect to differences between high-ability and low-ability readers, the results are conflicting. Some researchers have found that ability level does not play a role in the interest-comprehension effect, and students of all ability levels perform better on high-interest than low-interest texts. Other research has shown that lower ability students have significantly better comprehension on high- rather than low-interest texts, whereas, this difference is not as noticeable with high ability students. High ability students perform well, whether the material is of high- or low-interest.

STUDY DESIGN

Sample:

The students who participated in this study were three first graders from a Charlottesville City school. To compare the interest-comprehension relationship among students of varying ability levels, I chose one low-ability, one average-ability and one high-ability student. The teacher's recommendations, the level of text currently being read by each student, and the student's general level of attentiveness were used to choose the participants. Mark read on a Reading Recovery 7-8 level. Lisa read on a Reading Recovery 12-14 level. Sam read on a second to third grade level. The low-ability and high-ability readers were boys, and the average-ability reader was a girl. Both boys were white and the girl was African American.

Measures:

I worked with students individually in each session. Initially, I assessed each student's interest in specific nonfiction topics. Students were given a sheet with a continuum of five faces, from frowning to smiling (Appendix B). Students were told that I wanted to find out what they were interested in, and what topics they would

like to learn more about. We discussed what it meant for something to be interesting to them. The student told something that he or she was interested in or wasn't interested in, and we discussed how they would rate that on the scale.

The books used in the study were all nonfiction picture books written and illustrated by Gail Gibbons. These books were chosen because the illustrations were similar in all books; thus, picture support and appeal minimally influenced the student's comprehension and engagement. In addition, the books were written in a similar style and format, had comparable sentence structure, and comparable reading level. Each book was named as the topic discussed (ie. *Cats*), and the book's cover presented a clear illustration of the topic. The topics are presented in Table1.1 (Appendix C).

Each student's interest sheet was numbered 1-12, and the books were numbered accordingly. The student was shown the cover of the book and told the name of the topic. Then the student ranked his or her level of interest in each topic.

None of the books were read in their entirety. Rather, 32 sentences were selected from each book. This was done in order to keep the passage length and the amount of detail similar. Sections were chosen in a way that maintained the unity of the text.

In each session, I read both one high-interest and one low-interest book to the student. Before I read the book, the student was reminded that he or she

would tell what was learned about the topic following the reading. The student's response was tape-recorded. The books presented a lot of information and presented this information in a non-storybook format; thus, it was difficult for students to remember what they listened to. For that reason, I allowed the students to review the pictures (which corresponded minimally to the text) as they retold ideas that they remembered. If a student began to look at the words on the page, he or she was reminded not to do so. After the student completed the retelling, he or she was asked three to five questions about the book. These questions were included since a student may have comprehended more than was demonstrated through a retelling. At least one question was a factual question, and at least one question was open-ended. The students' responses to the questions were also recorded.

The students were young so I chose to use the children's retellings in order to assess comprehension. The questions were assessed as right or wrong based upon the text.

Table 1.1

Topic	*8. The Milk Makers*
1. Cats	*9. Dinosaurs*
2. Check It Out!: The Book About Libraries	*10. Trains*
3. Penguins	*11. Spiders*
4. Emergency!	*12. How a House Is Built*
5. Dogs	
6.Beacons of Light: Lighthouses	
7. Catch the Wind!: All About Kites	

RESULTS

After the students ranked their interests, I disregarded *The Milk Makers* since all of the students had listened to the book in class the day before.

All three students ranked more than two books as very high and more than two as very low. Therefore, I laid out those books rated as high-interest and asked the student to choose the two most interesting books. The same was done with the low-interest books. Mark chose *Dinosaurs* and *Penguins* as the most interesting topics, and *Catch the Wind!: All About Kites* and *Trains* as the least interesting topics. Lisa selected *Penguins* and *Beacons of Light: Lighthouses* as the most interesting topics, while she said that *Spiders* and T*rains* were the least interesting. Sam thought that *Dinosaurs* and *Check It Out!: The Book About Libraries* were the most interesting, while *Emergency!* and *Beacons of Light: Lighthouses* were the least interesting.

Mark (Low- Ability):

	High Interest (*Dinosaurs*)	High Interest (*Penguins*)	Low Interest (*Trains*)	Low Interest (*Catch the Wind: All About Kites*)
Number of facts (right, wrong, from pictures)	11	11	6	7
Number of correct facts (excluding answers gotten solely from pictures, text, or information already known by student but not in text)	10	10	4	6
Number of vocabulary terms that I supplied	3	3	0	0
Number of correct answers to questions	4/4	3/5	0/4	2/3

I first read one of Mark's high-interest books, *Dinosaurs*. He was clearly very interested in the topic. When asked if he already knew a lot about dinosaurs, he answered that he didn't know very much, but that his brother has a book that he wanted to read. Throughout the reading, Mark commented upon the illustrations and the text. Mark related the ideas to what he already knew about dinosaurs when he said "I remember that my brother told me it was a meteor that crashed the earth, but he never told me about when it was cold." After the reading, Mark recalled 11 pieces of

information, 10 of which were correct (the one fact was something that he got from the illustrations, but was not in the text). Although he had the associated concepts correct, I had to supply three terms, "Allosaurus," "Tyrannosaurus Rex," and "paleontologists." He answered all four questions correctly (*What are fossils? Who are paleontologists? What do paleontologists think caused dinosaurs t die? Describe Tyrannosaurus Rex.)* Mark's answers were fairly long and descriptive. For example, his description of Tyrannosaurus Rex was "He was big and all of them were scared of him. He had teeth that were six inches long."

Mark's other high-interest book was *Penguins.* He said that he had never heard of penguins before, but he thought they looked neat. Again, he retold 11 pieces of information after the reading, 10 of which were correct (the one fact was something that he got from the illustrations that was not in the text). Again, I supplied three vocabulary terms, "Emperor penguin," "downy feathers," and "aquarium." He understood the concepts and had information to say about each, but simply could not remember the terms. This book gave less picture support than others, but he nevertheless remembered such details as penguins "lost their ability to fly," Emperor penguins "are four feet tall," and Blue penguins are "one foot tall." He also commented on these facts during the reading. Mark answered three of the five questions correctly, forgetting the name of the smallest penguin (although he remembered it's

height). He also forgot what something is that makes penguins in danger, although in his retelling, he said that people disturb penguins.

The first low-interest book that I read was *Trains*. I read Trains in the same session as *Dinosaurs*. He remembered 7 total facts, 4 of which were correct (one was incorrect and two were taken from the illustrations, but not described in the text). Contrary to the high-interest books, Mark did not need help with any of the vocabulary terms in *Trains*. He did not get any of the questions correct. His answers to all of the questions (*Describe passenger trains. Describe Freight trains. What can people do on a passenger train? What are a couple of the different types of trains?*) were "I don't know," "I can't remember," or "I forgot." Overall, Mark seemed less interested in this book. He did not comment on the illustrations or the text as much as the other books, and he was not as excited while I read the book.

The other low-interest book that I read to Mark was *Catch the Wind!: All About Kites*, which I read following the high-interest book *Penguins*. Before the reading, Mark expressed that he had flown kites before and seen different kites. Throughout the reading, he commented on the illustrations and text, such as that he already knew about Benjamin Franklin and that he had not known that kites were used to predict weather. When he saw a picture of a kite, he also commented whether he had seen one of that type before. He recalled 7 facts, and 6 of these facts were correct. He did not need

me to supply any vocabulary terms. Of the questions, Mark answered 2 of the 3 questions correctly, although he supplied short answers. For example, he answered the question "What are some of the different shapes of kites?" by simply saying "the diamond kite."

Lisa (Average Ability)

	High Interest (*Penguins*)	High Interest (*Beacons of Light: Lighthouses*)	Low Interest (*Spiders*)	Low Interest (*Trains*)
Number of facts (right, wrong, from pictures)	7	2	4	8
Number of correct facts (excluding answers gotten solely from pictures, text, or information already known by student but not in text)	5	2	4	6
Number of correct answers to questions	1/4	2/6	4/6	2/5

Lisa was dependent upon the illustrations for all of her retellings. Whereas the other students would usually provide a few facts before using the illustrations to refresh their memories, Lisa would not say any facts until she looked at the illustrations. Lisa was shy and quiet and may have needed the additional reassurance from using the illustrations. Throughout each reading, Lisa did not seem to be especially interested in any of the books. As

I read, she wanted to take the pages and flip ahead or she looked closely at the illustrations without appearing to be listening to the text.

One of Lisa's high-interest books was *Penguins*. During the reading, when I read about the Blue Penguin, which was the smallest penguin, she interacted by asking which one it was so I pointed to it and she made a comment. She recalled 7 pieces of information, including the fact that the Blue Penguin is the smallest. Two of the pieces that she recalled were "They have families like we do" and "They play just like us" which were not ideas from the text. Thus, she recalled 5 accurate pieces of information. Lisa answered 1 of the 4 questions correctly. Her incorrect answers were mostly answers that she got from the illustrations, but were not in the text. For example, she answered the question, "What are some ways that penguins are disturbed or put in danger?" by saying "from storms and the sun" which was not written in the text, but she gathered from the illustrations.

The other high-interest book for Lisa was *Beacons of Light: Lighthouses*. When she chose this book as high-interest, she explained that it was because she had never heard of lighthouses, and she wanted to know about them. Even after reviewing the illustrations, Lisa could only remember 2 pieces of information, but both of these were accurate statements. She answered 2 out of the 6 questions correctly. Again, 2 of her incorrect answers were statements that came from the illustrations, but were

not in the text ("*What were the old lighthouses like?*" "Some of them were red and white and black." "*What are the new ones like?*" "White.").

Spiders was a low-interest book for Lisa. It was apparent that she chose this more because she did not like spiders than because she was not interested in learning about spiders. In fact, she seemed to be more engaged in this book than any others because she was so disgusted by spiders. She remembered 4 pieces of information, all of which were correct and not taken solely from the illustrations. Lisa also correctly answered 4 of the 6 questions. One of the questions that she answered correctly was an "either/or" question and one was a "yes/no" question. One of the questions that she answered incorrectly was "How long do most spider live?" She responded "until they're 52 years old," when the correct answer was 25 years old.

Lisa's other low-interest book was *Trains*. Of the 8 pieces of information that she recalled, 6 were correct. Lisa also answered 3 questions correctly out of 5 total questions. Her correct answers provided the same information that she had stated in her retelling. For example, she answered the question "What do people do on passenger trains?" by saying "they sleep and eat," and "*What can be delivered?*" by saying "boxes and oil" (although boxes was not included in the text). She did not get the other questions

correct, and thus, the questions did not demonstrate that she understood more than she retold.

Sam (High Ability)

	High Interest (*Dinosaurs*)	High Interest (*Check It Out!: The Book About Libraries*)	Low Interest (*Emergency!*)	Low Interest (*Beacons of Light: Lighthouses*)
Number of facts (right, wrong, from pictures)	9	6	5	12
Number of correct facts (excluding answers gotten solely from pictures, text, or information already known by student but not in text)	9	6	5	12
Number of correct answers to questions	3/3	4/4	3/3	3/3

Sam's book of highest interest was *Dinosaurs*. Before I read the book to him, he explained that he already knew a lot about dinosaurs and had read many books about them. During the reading, he commented on nearly every page. For instance, when I read the section about the different theories that scientists believe caused dinosaurs to become extinct, he responded that he

did not think it was either of those theories, and he provided his own explanation that he believed to be true. Also, when I read that all dinosaurs were scared of Tyrannosaurus Rex, he emphatically exclaimed that that was not true, and described how Tyrannosaurus Rex was actually fairly small. He recalled 9 pieces of information and all 9 were correct. He included pieces of information that conflicted with what he already thought, and made personal comments. For example, he said "All dinosaurs were scared of Tyrannosaurus Rex, even though they were a lot bigger," and "I have no clue why Allosaurus dared to eat Appatosaurus because he was a lot bigger than him." Sam answered all 3 of the questions correctly, and gave extended answers. He answered the question "Who are paleontologists?" by saying "People who wanted to discover what dinosaurs were. When they got fossils for dinosaurs they wanted to put them together to see the shape of the dinosaur." and "Why do paleontologists think that dinosaurs became extinct?" by saying "The earth got too hot so dinosaurs couldn't live." or "A comet hit earth and blocked the sun and it got real cold so they couldn't live on earth."

Check It Out!: The Book About Libraries was Sam's other choice for a high-interest book. When I read this book to Sam, he was extremely tired from the moment he walked in the door, and although I could tell that he was interested in the book, he was very sleepy throughout the reading. He did not comment upon the text like he had done when I read *Dinosaurs* to him.

He retold 6 facts from the book, and all of the facts were correct. These included such facts as "I learned at first, that they didn't use books, but they used clay and they used to scrolls to write on." Of the 4 questions, he answered all correctly, although his answers were not as lengthy as his answers for *Dinosaurs*. For instance, answered the question, "What do libraries do when there are people who can't get to the library to get a book?" by saying "There's a bookmobile that carries books and other stuff from libraries.

Emergency! was a low-interest book for Sam. He did not comment as much on this book, except when I came to a piece of information that he had not previously known, and he would say "I didn't know that!" He recalled 5 ideas from the text, which again included personal comments when it was something that conflicted with what he already thought. For example, he said " Some fire trucks don't always have their own water because before I though that all fire trucks have water in them." All 5 of the ideas that he remembered were correct. He answered all 3 of the questions correctly. All of the questions asked for information that was different than information that he provided in the retelling. Sam's answers were not as descriptive as they were for his high-interest books. His answer to the question "Who do people in ambulances help?" was simply "sick people."

Lastly, I read *Beacons of Light: Lighthouses* to Sam, which was a low-interest book for him. He said that he had never seen a lighthouse and didn't know much about them. He recalled 12 facts, and all 12 of these facts were correct. His recollection was extensive and included the use of unusual vocabulary terms, such as "foghorns" and "diaphones." He remembered such details as "I learned that the diaphone was one of the foghorns because it gave off two kinds of sounds, a high tone and a low tone." He also answered all 3 of the questions accurately. Although his answers were brief, they showed great understanding. His answer to the question "Besides light, what do lighthouses use to signal sailors?" was "foghorns, guns, and bells."

DISCUSSION

Mark (Low Ability):

Mark clearly had better comprehension of high-interest than low-interest books. For high-interest books, he remembered a greater number of facts, as well as a greater number of correct facts. In addition, he answered more questions correctly from the high-interest texts. Interestingly, Mark had limited prior knowledge, even of his high-interest topics. Despite this limited prior knowledge, he comprehended high-interest texts better than low-interest texts. Another issue that arose with Mark was vocabulary knowledge. His trouble recalling vocabulary terms may have been related to a lack of background knowledge. Mark had an understanding of the concepts and could explain what they meant, but forgot the terms. Interestingly, this only happened when reading high-interest material. This occurrence could mean that, for low-interest books, Mark did not remember major concepts, and thus, did not need to attach the associated terms. Another interesting finding from working with this student was that the amount of elaboration correlated to his level of interest. For instance, Mark gave long, descriptive answers and often commented upon the text and pictures when talking about dinosaurs, but responded to both low-interest texts using brief phrases.

Lisa (Average Ability):

From working with Lisa, I discovered the importance of a student's engagement with the text. Most of the time, Lisa was not highly

engaged. However, when she commented on the text or illustrations during the reading, she then remembered that fact during the retelling or questioning. Although the results do not show a significant difference in comprehension between Lisa's high- and low-interest topics, this might have been due to other factors. First, Lisa had some confusion over the term "interesting." Since I described an interesting topic as one that she would like to learn more about, Lisa took this to mean that she should choose topics that she did not know anything about. Also, her rated level of interest in a topic did not reflect her level of engagement. For example, Lisa chose *Spiders* as a low-interest book because she did not like spiders. However, because she was so disgusted by spiders, she was highly engaged during the reading, more so than during the reading of her high-interest books. Consequently, Lisa's comprehension score of *Spiders* was one of her highest. Thus, it is important to think about interest in terms of engagement with the text.

Sam (High Ability):

Sam comprehended many pieces of information for both high- and low-interest topics. In addition, all of the information that he recalled was correct. Level of interest did not seem to be a factor in determining Sam's comprehension. In terms of prior knowledge, Sam already knew a lot of information, especially about dinosaurs, libraries and emergency vehicles. However, his answers reflected concepts that he learned from the book, even if the information conflicted with his

knowledge. Another interesting finding was that Sam provided extremely descriptive and animated responses to his high- interest books, whereas he gave short answers to low-interest books. These descriptive responses demonstrated Sam's greater understanding of the topic. This could explain the conflicting findings of other studies about high-ability learners. Such studies used a multiple-choice format for high-ability students, which would not reflect the in-depth understanding that a student might have on a topic.

Analysis:

An important implication of this study is that topic interest is individual. I chose certain books that I thought children would find boring, but they did not always agree. For instance, I thought *Check It Out!: The Book About Libraries* would be a low-interest book, but one student chose it as high-interest. I also thought that the students, especially boys, would find *Trains* interesting, but they did not.

Another finding, which I have already addressed, is that greater interest means greater engagement. When students were interested, they gave longer descriptions. They interacted with the text by asking questions, comparing what they heard to what they knew, and commenting frequently. This was the case for all students.

Prior knowledge and background experience played important roles in comprehension, although to different degrees for each student. Both Lisa and Sam chose *Beacons of Light: Lighthouses* (the book was chosen as high-interest for Lisa and low-interest for Sam). Before I read the book, both students expressed that they did not know anything about lighthouses. After reading the book, Lisa recalled 2 pieces of information, whereas Sam recalled 12 pieces of information. Sam commented that he used to live by the ocean, had been on a ship and he related what was read to his life experiences. Lisa, on the other hand, did not seem to relate to a lot of the information. This might have made it more difficult for Lisa to understand new information since she did not have concepts to link this new information to. Mark illustrates how limited prior knowledge can be overcome when a student is motivated to learn about a topic. Mark's limitations were related to a lack of appropriate vocabulary. However, he was so intrigued with his high-interest choices that he remembered and could explain the concepts, but needed help with vocabulary terms.

The difference between narratives and nonfiction poses another intriguing issue. Children may prefer and comprehend books from one genre better than the other. Lisa was a higher-ability student than Mark; thus, it was expected that she would have comprehended better than he did. This was not the case, perhaps because she was not interested in nonfiction, in general. In this study, it seemed that the boys preferred nonfiction more than the girl did. It would be interesting to

study whether most boys prefer nonfiction, and how this affects them in the classroom.

In making comparisons between ability levels, this study found that level of interest had a greater impact on comprehension for lower-ability students. Overall, comprehension scores of the high-ability student were better than those of the other students. The low- and average- ability students performed similar to each other. The high-ability student seemed to have greater interest overall, regardless of the topic.

Limitations:

One drawback of this study was the fact that reading comprehension and listening comprehension were assumed to be directly related. In fact, reading and listening require different skills for comprehension. The students' ability levels were based on reading ability, but the study tested listening comprehension. It would be interesting to see how these students would perform with a reading comprehension task. A second drawback was the small sample size. More conclusive data could be drawn using a larger number of students. Lastly, text consistency was an issue. Although the texts were very similar, it was difficult to ensure that all books were equal with respect to difficulty, vocabulary and style.

Implications and Suggestions:

This study has important implications for the classroom and beyond. When determining the readability of a book, educators should consider using both text difficulty and interest, since interest can have such a large impact on the student's ability to comprehend. As previously discussed, interest is individual so rating the interest factor of a book would be a subjective task.

In the classroom, teachers should always include nonfiction when determining a student's reading level. A student's comprehension may differ significantly between nonfiction and narrative texts. I would also encourage teachers to have students complete an Interest Inventory, since it was shown that interest is very individual. Teachers can refer to the Interest Inventory throughout the year to help find books that would be of interest to students. When reading aloud to students, teachers should encourage the children to interact with the book. This will increase the student's engagement, interest, and comprehension of the book. Lastly, there must be a wide range of books in the classroom. These books should span a variety of genres and topics. This is especially crucial for lower-ability students. Most importantly, teachers should consider the importance of interest, and seek out ways to keep their students engaged in books.

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APPENDIX A

Transcriptions:

Mark (Low Ability)

High Interest:

Dinosaurs. I remember that my brother told me it was a meteor that crashed the earth, but he never told me about when it was cold. Biologists learned how big the dinosaurs were. They learned about some are peaceful. I never knew one dinosaur had spikes. I never knew that one dinosaur had a flat tail to beat other dinosaurs). The first two people found fossils. Allosaurus (I told him the name) was the biggest dinosaur of all. He ate dinosaurs that are even bigger than him. Tyrannosaurus Rex (had to give the name) was the biggest. The ones that were bigger than him and small were scared. Paleontologists (gave name) thought that they died because they lived for so long they started to die by the heat.
Questions: *What are fossils?* They're prints, is what they are. *Who are paleontologists?* People that look for fossils. *What do paleontologists think caused dinosaurs t die?* A meteor that hit the earth and covered the sun and the plants didn't get the heat that they needed and they died. They lived for so long that maybe they died by the heat. *Describe Tyrannosaurus Rex.* He was big and all of them were scared of him. He had teeth that were six inches long.

Penguins. I never knew that Penguins used to be birds. I never knew they lost their ability to fly. (They can swim in cold water.) Most penguins are different than others. The biggest penguins are called Emperor (I gave name) penguins. They are almost 4 feet tall. I never know they had what's it called, this stuff so they wouldn't get cold (I gave downy feathers). People can disturb them. You can find penguins in zoos and aquariums (gave name for aquarium). It is fun to watch them.
Questions: *How are all penguins the same?* They all have white stomachs (and a beak). *What is something that happens that makes penguins in danger?* I don't know. *What's the smallest penguin and how tall is it?* Don't remember, 1 foot tall. *How can penguins be different?* Size.

Low Interest:

Trains. There is coal trains for helping if it needs to be delivered. The first two trains were made 5000 years ago. All trains are connected to a track. Some trains are driven by a driver and there are lines connected to the electric. Trains

can take people far away or to close cities. Some trains go in tunnels(got from pictures).
Questions: *Describe passenger trains.* I can't remember. *Describe Freight trains.* I can't remember. *What can people do on a passenger train?* I don't know about that. Can't remember. *What are a couple of the different types of trains?* I don't know.

Catch the Wind!: All About Kites. I did not know that they were used for weather a long, long time ago. I never knew Japanese people were the first people to make kites and I also never knew that they used it for signals. I already knew that Benjamin Franklin put a key on part of a end of a string. He almost got wet, and if he would have, the electric would have hurt him. I did not know that a few kites don't have to have tales. I never knew one kite could form into different shapes when the air goes in different sides.
Questions: *What are some of the different types of kites?* One kite that didn't have to have string and one that did have to have a string. *What are some of the different shapes?* Diamond kite. *What are kites made out of?* Paper, plastic, foil, I think.

Lisa (Average Ability)
High interest:

Penguins. Blue Penguin's the smallest. They swim and used to fly. (They have families like we do. They play just like us.) They stand up straight. People disturb them by taking pictures of them.
Questions: *What is the biggest penguin?* I forgot. *How are all penguins the same?* They're black and white. *How can penguins be different?* Some have black spots on them (from pictures). *What are other ways that penguins are disturbed or put in danger?* From storms and the sun.

Beacons of Light: Lighthouses. Sometimes they use bells to warn the people. Sometimes they use lights to warn people.
Questions: *Who do lighthouses help?* People. *What kind of people?* People who can't see in the dark. *Where are they coming from?* Land. *What used to be used as the light in lighthouses a long time ago?* Bells. *Anything else?* Lights. *Besides light, what else do lighthouses use to signal sailors?* I forgot. *What were the old lighthouses like?* Some of them were red and white and black (pictures). *What are the new ones like?* White (pictures).

Low Interest:

Spiders. Some of them are big. They catch many insects. The biggest spider is a tarantula. Some frogs eat spiders.

Questions: *Who is older, spiders or dinosaurs?* Spiders. *Name a dangerous spider.* Tarantula. *Can you think of another one?* No. *Who eats spiders?* Some frogs. *How did spiders get their names, the name arachnids?* Don't remember. *Do most spiders hurt people?* No. *How long do most spider live?* Until they're 52 years old.

Trains. There's all kinds of trains. People can sleep on the trains. There's box trains. They can eat on the trains. (The trains are long.) (There's tank cars-read.) The tank cars have oil in them. It's fun to watch trains go by.
Questions: *Tell me about passenger trains. What do people do on passenger trains?* Sleep and eat. *Describe freight trains/ what they're used for?* Don't know. *What are some of the different types of trains?* Box cars. *What are some of the things that people can take on trains?* Purses. *What can be delivered?* Boxes, oil.

Sam (High Ability)
High Interest:

Dinosaurs. All were scared of Tyrannosaurus Rex even though they were a lot bigger. No clue why Allosaurus dared to eat Appatosaurus because he was a lot bigger than him. Dinosaurs ruled for millions of years. People put fossils together to get shape of dinosaur. Ankylosaurus and Stegosaurus weren't too fast.
Questions: *Who are paleontologists?* People who wanted to discover what dinosaurs were. When they got fossils for dinosaurs they wanted to put them together to see the shape of the dinosaur. *Why do paleontologists think that dinosaurs became extinct?* The earth got too hot so dinosaurs couldn't live. A comet hit earth and blocked the sun and it got real cold so they couldn't live on earth. *Describe Tyrannosaurus Rex.* He was big and scary and the scariest of all dinosaurs. All dinosaurs were scared of him.

Check It Out: The Book About Libraries. (he was very tired) I learned at first, that they didn't use books, but they used clay and they used to scrolls to write on, and I learned that the biggest library in the United States is in Washington, D.C. and there are millions and millions of books there. I learned that librarians can help me find a certain book if you need it.
Questions: *What different things can you do if you are looking for a book in the library and you can't find it?* You go to the librarian and ask them to help you find the book. *Are than any other ways?* Let the librarian look. *What else can you get at a library besides books?* Tapes, movies, magazines, and I can't remember. *What do libraries do when there are people who can't get to the library to get a book?* There's a bookmobile that carries books and other stuff from libraries.

Low Interest:

Emergency! I learned that many times people use helicopters and planes to carry people to the hospital and that the police use the sirens to help people know that they're coming through to move out of the way on the road. Some fire trucks don't always have their own water because before I though that all fire trucks have water in them. They use the fire hydrant to get their water.
Questions: *Who do people in ambulances help?* Sick people. *What type of vehicle helps when power lines are knocked down in a storm?* The boom helps the person to fix the line because it lifts the person up. *What are helicopters and planes used for?* To get to the hospital a lot faster because in traffic sometimes it's kind of jammed.

Beacons of Light: Lighthouses. I learned that lighthouses now some go on and off automatically and some stay on all the time. And I learned that a long time ago people used guns and loud stuff like that to warn boats in the water because there was something dangerous there. And I learned that today they use foghorns. And I learned that the waves when the ships are out, toss the boats around in darkness. And I learned that there are a lot of objects in the water. That's why they build lighthouses so that they could warn the people on ships, like rocks and other stuff. I learned that the diaphone was one of the foghorns because it gave off two kinds of sounds, a high tone and a low tone.
Questions: *What are the lighthouses used for and who do they help?* A lighthouse is used to warn ships that there is an object in the water and to be careful so the ship doesn't crash into it and break. *What used to be used as the light in lighthouses, a long time ago?* Fire. *Besides light, what do lighthouses use to signal sailors?* Foghorns, guns, bells.

APPENDIX B

Interest Inventory:

1.

2.

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7.

APPENDIX C

List of Books Used With Children:

Gibbons, Gail (1990). Beacons of Light: Lighthouses. William Morrow and Company.

Gibbons, Gail (1995). Catch the Wind!: All About Kites. Little Brown and Company.

Gibbons, Gail (1996). Cats. Holiday House.

Gibbons, Gail (1985). Check It Out!: The Book About Libraries. Harcourt Brace.

Gibbons, Gail (1987). Dinosaurs. Holiday House.

Gibbons, Gail (1996). Dogs. Holiday House.

Gibbons, Gail (1994). Emergency! Holiday House.

Gibbons, Gail (1990). How a House Is Built. Holiday House.

Gibbons, Gail (1985). The Milk Makers. Atheneum.

Gibbons, Gail (1998). Penguins. Holiday House.

Gibbons, Gail (1993). Spiders. Holiday House.

Gibbons, Gail (1987). Trains. Holiday House.